AN ANALYSIS OF FINANCIAL RATIOS IMPACT ON PROFITABILITY OF SELECT AUTOMOBILE COMPANIES IN INDIA

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Abstract

Profit is necessary for the endurance and growth of any business enterprise. If the enterprise is not able to generate enough profit it will not survive in the growing competitive world. The current paper studies the impact of financial ratios such as Liquidity ratios, Leverage ratio & Managerial Efficiency ratios on Profitability. For the analysis, data of past 5 financial years from 2012 to 2016 was considered and the following 7 companies Maruti Suzuki India, Tata Motors, Bajaj Auto, Mahindra and Mahindra, Hero Motocorp, Bosch, Eicher Motors were chosen from Nifty 50 companies, these companies represent automobile sector which contribute 11.78% to the overall weight-age of the index.

The results of the study conclude that Debit Equity ratio & Debtors Turnover Ratio are influencing Net profit margin of the selected auto companies. The Current Ratio, Quick Ratio and Inventory Turnover Ratio are influencing both Return on Capital Employed & Return on Net Worth of the selected auto companies.

Key Words: **Indian Automobile Industry, Liquidity ratio, Leverage ratio & Managerial Efficiency ratios, Impact, Profitability.**

INTRODUCTION

The Indian automobile industry is one of the largest in the world. The industry accounts for 7.1 percent of the country's Gross Domestic Product. The Two Wheelers segment with 81 per cent market share is the leader of the Indian Automobile market owing to a growing middle class and a young population. Moreover, the growing interest of the companies in exploring the rural markets further aided the growth of the sector. The overall Passenger Vehicle segment has 13 percent market share. India is also a prominent auto exporter and has strong export growth expectations for the near future. In April-March 2016, overall automobile exports grew by 1.91 percent. Passenger Vehicle, Commercial Vehicles, and Two Wheelers registered a growth of 5.24 per cent, 16.97 per cent, and 0.97 per cent respectively in April-March 2016 over April-March 2015. In addition, several initiatives by the Government of India and the major automobile players in the Indian market are expected to make India a leader in the two wheeler and Four Wheeler market in the world by 2020.

The automotive industry is not only one of the world's most important economic sectors by revenue; it also takes up a leading role in terms of quality expectations, product range and process complexity. The Indian automobile industry is considered as one of the key drivers that boost the economic growth of India. By De-licensing the sector in the year 1991 and subsequently opening up of 100 percent FDI through automatic route, the Indian automobile industry has come a long way.

Financial ratio analysis is a vital as the profitability of an enterprise is directly affected by such decision. There are various ratios to determine the financial position of the firm. Identifying those

ratios which influence the profitability is one of the key elements of the firm's financial strategy. Profitability is the state of yielding a financial gain. It is the primary goal of all enterprises. Without profitability the business will not continue in the long run. Increasing profitability is one of the most important tasks of the entrepreneur. They constantly look for ways to change the business strategy to improve profitability. So measuring yesteryear profitability and projecting future profitability is very important. A variety of Profitability Ratios can be used to assess the financial health of a business. These ratios, created from the income statement, can be compared with industry benchmarks. Profitability ratios manifest an enterprise's ability to spawn earnings relative to sales, assets and equity. These ratios gauge the ability of an enterprise to yield earnings, profits and cash flows relative to some indicator, often the capital invested. Profitability is outcome of a numerous policies and decisions. In sum, the profitability ratios expose the blended outcome of liquidity, asset management and debt on the efficiency of the enterprise.

REVIEW OF LITERATURE

Sanjay Hiran (2016) in his research on Financial Performance Analysis of Indian Companies Belongs to Automobile Industry with Special Reference to Liquidity & Leverage analysed 25 Indian automobile companies out of 29 companies which is part of CNX500 Index of NSE, taking into consideration data for the period of five years 2011 to 2015. He concluded that inventory turnover ratio is negative association with operating profit, quick ratio is positive association with operating profit & net profit while current ratio has negative relation with net profit and also highlighted that except combined leverage both operating and financial leverage has significant and negative relation with profitability.

Khedkar (2015) analysed the relationship between financial leverage and return on investment, operating leverage and return on investment and combined leverage and return on investment for Dr Reddy's Laboratories taking data for the financial year 2013-14. The study concluded that degree of operating leverage is significant & negatively correlated with return on investments, the degree of financial leverage and combined leverage is positive but not significant association with return on investments and suggested to Dr Reddy‟s Laboratories to revise its capital structure which should include the optimum blend of equity and borrowed funds so that it has positive impact on Return on Investment.

Kumar (2014), examined the relationship between leverage and profitability of Bata India Limited taking into consideration seven years data for the period from 2006 to 2013. He suggested to Bata to revise its capital structure which should include the optimum blend of equity and borrowed funds so that it has positive impact on Return on Investment. More over degree of combined leverage is positively correlated with ROI of Bata India.

Khidmat & Rehman, (2014) in their research with an objective to define the relationship liquidity and profitability of companies of chemical sector, taking into consideration data of 36 companies and 10 companies listed in Pakistan concluded that Liquidity ratio show the positive while Solvency ratio show the negative result on profitability because if company have more cash in hand than it would be capable to meet the liquidity problem. Yadav (2014) study analysed liquidity position of the three pharmaceutical companies i.e. Procter and gamble , Reddy and Cipla ltd and concluded that Cipla ltd company show the best result in liquidity ratio.

Saleem and Rehman (2011) study on impact of liquidity rations on profitability on the basis of data collected for the period 2004 to 2009 of the Oil & Gas Companies listed in Karachi Stock Exchange. They considred return on assets, return on equity & return on investments as a variable for profitability ratio and current ratio, quick ratio & liquid ratio as a variable for liquidity and found that return on assets is significantly affected by liquidity ratio, return on equity is not affected by current

ratio, quick ratio and liquid ratio whereas return on investment is significantly affected by all the three ratios.

Singh and Pandey (2008), study to identify the impact of working capital management on profitability of Hindalco Industries for the period from 1990 to 2007. The results of this study showed that working capital ratio i.e. current ratio, liquid ratio, receivable turnover ratio and working capital to total assets ratio had statistically significant influence on the profitability of the Hindalco Industries Limited.

Objectives of the Study

- To study the impact of liquidity ratios on profitability of selected automobile companies in India.
- To study the impact of leverage ratios on profitability of selected automobile companies in India.
- To study the impact of management efficiency ratios on profitability of selected automobile companies in India.

Scope of the Study

The scope of the study is confined to the following 7 companies:

1) Maruti Suzuki India
2) Tata Motors
3) Bajaj Auto
4) Mahindra and Mahindra
5) Hero Motocorp
6) Bosch
7) Eicher Motors

The companies were chosen from Nifty 50 companies, these companies represent automobile sector which contribute 11.78% to the overall weight-age of the index.

Research Methodology

Data Collection: the financial data required for the analysis was drawn from www.moneycontrol.com.

Period of the Study: the period of the study covers 5 financial years from 2012 to 2016.

Variables:

Independent Variables:

Liquidity Ratios: Current Ratio (CR), Quick Ratio (QR).

Leverage Ratio: Debtors Equity Ratio (DER).

Managerial Efficiency Ratios: Inventory Turnover Ratio (ITR), Debtors Turnover Ratio (DTR).

Dependent Variables: The following ratios are taken as proxy for Profitability - Net Profit Margin (NPM), Return on Capital Employed (ROCE), Return on Net Worth (RONW).

Statistical Tools & Techniques: In order to analyze the collected data the statistical tools such as correlation and Multi regression OLS model is used. Correlation coefficient is a statistical measure that determines the degree to which two variable's movements are associated. Correlation coefficient value ranges from -1 to 1. Negative value of correlation indicates: if one variable increases in its values, the other variable decreases in its value and positive value indicates: if one variable increases in its values the other variable also increases in its value. In the current study to study the linear relationship between ratios such as CR, QR, DER, ITR, DTR and NPM, ROCE, RONW correlation is applied. The multiple regression analysis is a statistical technique used to evaluate the effects of two or more independent variables on a single dependent variable. In the current paper attempt is made to study the impact of Liquidity Ratios(CR, QR), Leverage Ratio(DER) and Managerial Efficiency Ratios(ITR, DTR) on Profitability Ratios (NPM, ROCE, RONW)

Model Building:

Multiple Linear Regression model consisting of five independent variables has been used to test the effect of independent variables on dependent variable as shown below:

$y = b_0 + b_1 x_1 + b_2 x_2 + ... + b_k x_k$

Where, y - Dependent Variable and $x_1, x_2, ..., x_k$ - Independent Variables and $b_0, b_1, b_2, ..., b_k$ - Regression Coefficients

Model 1: NPM = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)

Model 2: ROCE = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)

Model 3: RONW = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)

Analysis & Discussion

Before analyzing the impact of liquidity ratios, Leverage ratio and Management efficiency ratio on profitability, the association between the selected variables has to be ascertained. Pearson correlation coefficient is applied to study the association between the variables. Using SPSS 16.0 Pearson coefficient of correlation is computed the results of the correlation analysis are presented in Table 1.

		CR	QR	DER	ITR	DTR
NPM	Pearson Correlation	0.169	0.094	-.827**	0.246	.476**
	p value	0.333	0.59	0.00	0.155	0.004
ROCE	Pearson Correlation	-0.159	-0.219	-.508**	.622**	.518**
	P value	0.362	0.207	0.004	0.00	0.001
RONW	Pearson Correlation	-0.143	-0.207	-.547**	.641**	.503**
	p value	0.412	0.233	0.001	0.00	0.002

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1: Correlation between selected Ratios

NPM and CR: The r value **0.169,** indicates that there is a very low degree of positive correlation between NPM and CR. The correlation was not significant at 1 percent level of significance.

NPM and QR: The r value **0.094,** indicates that there is a very low degree of positive correlation between NPM and QR. The correlation was not significant at 1 percent level of significance.

NPM and DER: The r value **-0.827,** indicates that there is fairly high degree of negative correlation between NPM and DER. The correlation is found to be significant at 1 percent level of significance.

NPM and ITR: The r value **0.246,** indicates that there is a very low degree of positive correlation between NPM and ITR. The correlation was not significant at 1 percent level of significance.

NPM and DTR: The r value **0.476,** indicates that there is a low degree of positive correlation between NPM and DTR. The correlation was found to be significant at 1 percent level of significance.

ROCE and CR: The r value **-0.159,** indicates that there is a very low degree of negative correlation between ROCE and CR. The correlation was not significant at 1 percent level of significance.

ROCE and QR: The r value **-0.219,** indicates that there is a very low degree of negative correlation between ROCE and QR. The correlation was not significant at 1 percent level of significance.

ROCE and DER: The r value **-0.508,** indicates that there is a moderate degree of negative correlation between ROCE and DER. The correlation was found to be significant at 1 percent level of significance.

ROCE and ITR: The r value **0.622,** indicates that there is a moderate degree of positive correlation between ROCE and ITR. The correlation was found to be significant at 1 percent level of significance.
ROCE and DTR: The r value **0.518,** indicates that there is a moderate degree of positive correlation between ROCE and DTR. The correlation was found to be significant at 1 percent level of significance.

RONW and CR: The r value **-0.143,** indicates that there is a very low degree of negative correlation between RONW and CR. The correlation was not significant at 1 percent level of significance.
RONW and QR: The r value **-0.207,** indicates that there is a very low degree of negative correlation between RONW and QR. The correlation was not significant at 1 percent level of significance.
RONW and DER: The r value **-0.547,** indicates that there is a moderate degree of negative correlation between RONW and DER. The correlation was found to be significant at 1 percent level of significance.
RONW and ITR: The r value **0.641,** indicates that there is a moderate degree of positive correlation between RONW and ITR. The correlation was found to be significant at 1 percent level of significance.
RONW and DTR: The r value **0.503,** indicates that there is a moderate degree of positive correlation between RONW and DTR. The correlation was found to be significant at 1 percent level of significance.

After having established the fact that liquidity ratios, Leverage ratio, Management efficiency ratios and profitability ratios are related the next level is to know impact, which has been analyzed using multi regression analysis.
Model 1: NPM = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)
The table 2 is the model summary reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients, is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. The value of R^2 is 0.791; it shows that the model explains 79.1% of the variation. In other words the dependent variables CR, QR, DER, ITR, DTR is able to explain around 79% the variation of the dependent variable (NPM).

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.889[a]	.791	.749	3.25073
Independent Variables : (Constant), DTR, DER, ITR, CR, QR Dependent Variable: NPM				

The ANOVA table 3, tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that has not been accounted by the model. The regression much is less than residual sums of squares, which indicates that around 79% of the variation in NPM is explained by the model. However, F statistic is found significant, since the p value (0.000) less than 0.05.

Table 3: ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1000.234	5	200.047	18.931	.000*
	Residual	264.181	25	10.567		
	Total	1264.415	30			
*Significant at 5 Percent of level of Significance.						

The p-value related to DER shown in table 4, is less than 0.05, hence it is concluded that at 5 percent level of significance the Debit Equity ratio is influencing Net profit margin of the selected auto companies. The p-value related to DTR shown in table 4, is less than 0.10, hence it is concluded that at 10 percent level of significance the Debtors Turnover Ratio is influencing Net profit margin of the selected auto companies. However the other ratios such as Current ratio, Quick ratio and Inventory turnover ratio are not influencing the net profit margin ratio.

Table 4: Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.619	3.857		2.494	.020
	CR	10.947	7.819	1.008	1.400	.174
	QR	-14.011	10.611	-.952	-1.320	.199
	DER	-15.094	3.007	-.725	-5.019	**.000***
	ITR	.050	.083	.081	.608	.548
	DTR	.027	.015	.247	1.809	**.083****
*Significant at 5 Percent of level of Significance. **Significant at 10 Percent of level of Significance.						

Model 2: ROCE = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)

The table 5 is the model summary reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients, is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. The value of R^2 is 0.716; it shows that the model explains 71.6% of the variation. In other words the dependent variables CR, QR, DER, ITR, DTR is able to explain around 72% the variation of the dependent variable (ROCE).

Table 5: Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.846[a]	.716	.659	11.59058
Independent Variables : (Constant), DTR, DER, ITR, CR, QR Dependent Variable: ROCE				

The ANOVA table 6, tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that has not been accounted by the model. The regression much is less than residual sums of squares, which indicates that around 72% of the variation in ROCE is explained by the model. However, F statistic is found significant, since the p value (0.000) less than 0.05.

Table 6: ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8459.982	5	1691.996	12.595	**.000***
	Residual	3358.538	25	134.342		
	Total	11818.520	30			
*Significant at 5 Percent of level of Significance.						

The p-value related to CR, QR and ITR shown in table 7, is less than 0.05, hence it is concluded that at 5 percent level of significance the Current Ratio, Quick Ratio and Inventory Turnover Ratio is influencing Return on Capital Employed of the selected auto companies. However the other ratios such as Debtors Equity Ratio and Debtors Turnover Ratio are not influencing the Return on Capital Employed.

Table 7: Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.751	13.751		-.491	.628
	CR	71.249	27.879	2.145	2.556	**.017***
	QR	-86.015	37.833	-1.911	-2.274	**.032***
	DER	-5.634	10.723	-.088	-.525	.604
	ITR	1.356	.295	.711	4.594	**.000***
	DTR	.086	.054	.253	1.587	.125
*Significant at 5 Percent of level of Significance.						

Model 3: RONW = $b_0 + b_1$ (CR) + b_2 (QR) + b_3(DER) + b_4 (ITR) + b_5 (DTR)

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.889[a]	.790	.748	9.54720

Independent Variables : (Constant), DTR, DER, ITR, CR, QR
Dependent Variable: RONW

The table 8 is the model summary reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients, is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. The value of R^2 is 0.790; it shows that the model explains 79% of the variation. In other words the dependent variables CR, QR, DER, ITR, DTR is able to explain around 79% the variation of the dependent variable (RONW).

Table 9: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8579.822	5	1715.964	18.826	.000*
	Residual	2278.725	25	91.149		
	Total	10858.548	30			

*Significant at 5 Percent of level of Significance.

The ANOVA table 9, tests the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The Residual row displays information about the variation that has not been accounted by the model. The regression much is less than residual sums of squares, which indicates that around 79% of the variation in RONW is explained by the model. However, F statistic is found significant, since the p value (0.000) less than 0.05.

Table 10: Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8.346	11.327		-.737	.468
	CR	80.207	22.964	2.519	3.493	**.002***
	QR	-100.865	31.163	-2.338	-3.237	**.003***
	DER	-8.694	8.833	-.142	-.984	.334
	ITR	1.318	.243	.721	5.421	**.000***
	DTR	.066	.044	.204	1.487	.149
*Significant at 5 Percent of level of Significance.						

The p-value related to CR, QR and ITR shown in table 10, is less than 0.05, hence it is concluded that at 5 percent level of significance the Current Ratio, Quick Ration and Inventory Turnover Ratio is influencing Return on Net Worth of the selected auto companies. However the other ratios such as Debtors Equity Ratio and Debtors Turnover Ratio are not influencing the Return on Net Worth.

CONCLUSION

Every enterprise is by nature focused on extracting the highest amount of profit from their business activities. When investments are made in any business venture, whether by owners or shareholders, it is because they expect profit out of their investments. And the measure of a successful enterprise is frequently based on how much and how consistently it can turn a profit. Ratios such as Net Profit Margin, Return on Capital Employed and Return on Net worth reflects are the financial metrics that are used to assess a business's ability to generate earnings compared to its expenses and other relevant costs incurred during a specific period of time. For any enterprise it would be very imperative to know which of the financial ratios which influence the profitability ratios. The current study identifies the various ratios of Liquidity ratios, Leverage ratio & Managerial Efficiency ratios influencing the profitability ratios. The following conclusions were drawn. Debit Equity ratio & Debtors Turnover Ratio were influencing Net profit margin of the selected auto companies. However the other ratios such as Current ratio, Quick ratio and Inventory turnover ratio are not influencing the net profit margin ratio. Current Ratio, Quick Ratio and Inventory Turnover Ratio is influencing Return on Capital Employed of the selected auto companies. However the other ratios such as Debtors Equity Ratio and Debtors Turnover Ratio are not influencing the Return on Capital Employed. Current Ratio, Quick Ration and Inventory Turnover Ratio is influencing Return on Net Worth of the selected auto companies. However the other ratios such as Debtors Equity Ratio and Debtors Turnover Ratio are not influencing the Return on Net Worth.

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